# PLATTE / KANSAS RIVERS ECOSYSTEM PLAN



# U.S. FISH AND WILDLIFE SERVICE AND PARTNERS

**AUGUST 2002** 

# U.S. FISH AND WILDLIFE SERVICE PLATTE / KANSAS RIVERS ECOSYSTEM PLAN

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# Ecosystem Planning for the Platte / Kansas Rivers Ecosystem Including the States of Colorado, Kansas, Nebraska and Wyoming

#### PURPOSE AND MISSION STATEMENT

The U.S. Fish and Wildlife Service is the principal federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. The Service manages the 93-million-acre National Wildlife Refuge System comprised of more than 500 national wildlife refuges and thousands of waterfowl production areas. It also operates 65 national fish hatcheries and 78 ecological services field stations. The agency enforces federal wildlife laws, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands and grasslands, administers the Endangered Species Act, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid program which distributes hundreds of millions of dollars, collected in excise taxes on fishing and hunting equipment, to state wildlife agencies.

Ecosystem teams are fundamental to the Service in sustaining good land health. Ecosystem teams should be the primary delivery mechanism for establishing priorities and identifying areas of greatest conservation concern in their ecosystems (Fulfilling the promise, 1999). The Service is developing a nationally coordinated approach involving ecosystem teams, partners and stakeholders to preserve natural resources for the American people.

The purpose of the Platte / Kansas Rivers ecosystem plan is to identify key resource components within the ecosystem, identify threats to those components, initiate plans and actions to minimize those threats, and promote landscape level conservation efforts with partners. This document outlines a strategic plan of action for the Platte / Kansas Rivers ecosystem in accordance with Service ecosystem policy. The plan establishes three primary sub-units within the Platte / Kansas Rivers ecosystem, Mixed Grass Prairie, Mountain, and Short Grass Prairie geographic units. Each geographic unit is defined, specific threats are identified, goals and objectives are outlined, strategies developed to conserve biodiversity. This plan also contains a decision matrix the Platte / Kansas Rivers ecoteam will use to prioritize projects when multiple opportunities to address natural resource issues arise within the ecosystem (see Appendix 1).

The Platte / Kansas Rivers ecosystem team recognizes the "artificial nature" of ecosystem boundaries. The Platte / Kansas Rivers ecosystem share common landscape types with Arkansas / Red River, Main Stem Missouri, Missouri / Yellowstone / Columbia, Upper Colorado River and Rio Grande ecosystems. While this plan addresses priorities within the Platte / Kansas Rivers boundary, we remain committed to working with, and supporting, adjoining ecosystem team goals and objectives. We anticipate sharing expertise, information and resources across ecosystem, state and regional boundaries. Additionally, this plan is expected to pave the way for larger more detailed plans in the future. As partnerships are developed, successes realized, and our knowledge of ecological processes evolve, this document should be modified and improved to reestablish new challenges. We anticipate revisiting this Plan at five year intervals.

#### PLATTE / KANSAS RIVERS ECOSYSTEM VISION

The vision of the Platte / Kansas Rivers ecoteam is to provide partnership based, landscape level conservation for the diversity and abundance of natural resources within the ecosystem. The team envisions landscapes which exhibit natural, healthy, ecological processes; ongoing protection of threatened, endangered and endemic species; protecting and promoting native prairie vegetation; involving all stakeholders in decision making processes; and recognizes that partnerships are the key to success.

#### PLATTE / KANSAS RIVERS ECOSYSTEM DESCRIPTION

The U.S. Fish and Wildlife Service has divided the country into 53 watershed-based ecosystem management units (see Map 1). The Platte / Kansas Rivers ecosystem unit encompasses approximately 182,000 square miles of the central Great Plains of the United States (see Map 2). The Platte / Kansas Rivers ecoregion includes the States of Colorado, Kansas, Nebraska and Wyoming. The area is diverse, beginning at the headwaters of the North and South Platte River systems high in the Rocky Mountains, moving into sage brush uplands of north-central Colorado and southeastern Wyoming, traversing across the shortgrass prairie regions of eastern Colorado, and the mixed grass prairie regions of Nebraska and Kansas. The primary ecological processes affecting this system are climate, cultivation, grazing and fire. The ecosystem is considered arid with an average annual precipitation between 8 and 16 inches per year. Approximately 85% of the Platte / Kansas Rivers ecoregion is privately owned. The remainder is primarily owned and managed by state and federal agencies.

Grasslands are considered to be one of the most imperiled ecosystem types in North America and worldwide (TNC, 1998). The Platte / Kansas Rivers ecosystem falls primarily into the Northern Great Plains Dry Steppe Province, and the Central Shortgrass Prairie ecoregions as described by Bailey et al. (1994). Bison and other native herbivores have been extirpated or greatly reduced throughout the Ecoregion. Grassland birds, such as the mountain plover and lesser prairie chicken, have shown steeper and more widespread declines that any other group of North American species (TNC 1998).

In the larger context of conserving biological diversity in agricultural and natural ecosystems in North America, prairies are a priority, perhaps the highest priority. It is time to bring a measure or prairie conservation to the forefront.

Fred B. Samson and Fritz L. Knopf, bioscience (1994)

People and partnerships are the keys to success. The team will continue to develop partnerships to conserve the diversity and abundance of natural resources in the ecosystem. In some cases, educating people to the importance of conservation issues, so they may become advocates for the resources, may be the most valuable effort.

The Platte / Kansas Rivers Ecosystem Planning Team (see Appendix 2 and 3), with input from current partners and field stations, identified and prioritized three primary geographic sub-units, Mixed Grass Prairie, Mountain, and Shortgrass Prairie sub-units. Within each geographic sub-

unit, priorities were established based on significance in the ecosystem, species diversity, risk/threat to the entire ecosystem area, public benefits, trust resources. Also considered was legal mandates, opportunity for partnerships, likelihood of success, and cost effectiveness.

# **Geographic Sub-Unit: MIXED GRASS PRAIRIE**

#### **Mixed Grass Prairie - Resource Area:**

The mixed grass prairie encompasses the eastern 2/3 of the north ½ of the State of Kansas and the eastern 2/3 of the State of Nebraska (see Map 3). Elevation varies from 3000 to 5500 feet above mean sea level. The area is largely under private ownership and consists primarily of grassland or grassland converted to crop land. Marais des Cygnes National Wildlife Refuge (NWR) is considered a priority for this geographic sub-unit, although it does not officially fall within the Platte / Kansas Rivers ecoregional boundaries.

#### **Mixed Grass Prairie - Vision:**

The mixed grass ecosystem will be one in which: 1) natural, healthy ecological processes dominate; 2) threatened, endangered and endemic species are protected; 3) recreational opportunities are enjoyed in a way compatible with resource protection; 4) economic development complement environmental protection; 5) decisions are based on the best available scientific data; 6) all stakeholders are involved in a collaborative decision-making process; 7) actions are guided by adaptive, flexible management and monitoring; 8) partnerships are the norm; 9) a largely privately owned landscape where family farms and ranches are economically viable and resource stewardship is tied sustainable agriculture.

# **Mixed Grass Prairie - Threatened and Endangered Species:**

Least tern

Piping plover

Topeka shiner

Meads milkweed

Western prairie fringed orchid

Pallid sturgeon

Bald eagle

American burying beetle

Tiger beetle (Salt Creek) - candidate

Eskimo curlew

Whooping crane

Blowout penstemon

Black-footed ferret

## **Mixed Grass Prairie - Invasive Species of Concern:**

Purple loosestrife

Sericea lespediza

Zebra mussel

Osage orange

Canada thistle

Musk thistle

Leafy spurge

Russian olive

Eastern red cedar

Salt cedar Phragmites Siberian elm Black locust Honey locust

# **Mixed Grass Prairie - Ecological Targets:**

1. <u>Continuing Priorities</u> Platte River Rainwater Basin Sandhills Missouri River

New Initiatives
 Saline wetlands
 Tallgrass region
 Marais des Cygnes River
 Kansas River

# **Mixed Grass - Goals and Objectives:**

- 1. Expand the existing grassland easement program, utilized by the Service in the Dakotas, to protect high-quality native prairie from urban development and agricultural conversions. Prioritize conservation easements that connect native prairie tracts. Use current GAP analysis information to prioritize project areas.
- 2. Encourage restoration and enhancement of both prairie uplands and wetlands on public and private lands to promote and preserve diversity of prairie habitats and species. Examine the possibility of lengthening the Conservation Reserve Program contract time frame and paying more for native grass mixes that include a wide variety of native species.
- 3. Develop a system of demonstration areas for prairie management. Develop programs and brochures on native prairie functions and values.
- 4. Reduce invasion of exotic species that out compete native grasses and forbs.
- 5. In cooperation with partners, restore and maintain habitats for threatened, endangered, or declining species including lesser prairie chicken, black-footed ferret, swift fox, black-tailed prairie dog, mountain plover, and burrowing owl.
- 6. Increase awareness about the ecological and economic benefits of good prairie management through expanded outreach and environmental education efforts aimed at the general public, landowners, and elected officials.
- 7. Develop school curriculum demonstrating native prairie functions and values and the interrelationships between people, animals and plants.

8. Develop a cost analysis between doing landscape scale work now versus waiting and doing species-by-species preservation under the Endangered Species Act.

# **Strategies to Accomplish Goals:**

- 1. Survey and inventory remaining saline wetlands within focus areas.
- 2. Initiate and/or participate in partnerships to protect saline wetlands.
- 3. Restore and enhance 2.5 million acres of tallgrass prairie within the focus areas.
- 4. Protect and/or enhance 1500 miles of rivers.
- 5. Work with partners to enroll lands in CRP and other buffer initiatives along riparian areas.
- 6. Coordinate with Corps of Engineers to limit stream channelization.
- 7. Promote partnerships to work on landscape scale initiatives designed to proactively work towards preventing future listings under the ESA.
- 8. Promote environmental education.
- 9. Promote conservation easements.
- 10. Promote increased funding for conservation work on private lands.
- 11. Invasive species control.

#### **Partners:**

American Sport Fishing Association

Animal and Plant Health Inspection Service

Cattlemen's Association

**Conservation Districts** 

Corps of Engineers

Department of Defense

Department of Transportation

**Ducks Unlimited** 

Farm Bureaus

Individual landowners

Kansas Association of Conservation and Environmental Education

Kansas Association of Teachers of Science

**KS Land Trust** 

KS Wetland Riparian Alliance

Local and National Audubon Societies

Local non-profits conservation groups

National Fish & Wildlife Foundation

Natural Resource Conservation Service

Niobrara Council

Oil companies (Texaco, Phillips)

Partners in Flight Biological Heritage Program

Pheasants Forever

Platte River Cooperative

Platte River Whooping Crane Trust

Prairie Plains Resource Institute

**Ouail Unlimited** 

Rain Water Basin Joint Ventures

Resource and Conservation Development Councils

Sandhill Task Force

Sierra Club

**State Conservation Commission** 

State Extensions

State land boards

**State School Districts** 

State natural resource agencies

Tallgrass Legacy Alliance

The Nature Conservancy

Tribes

Universities

US Department of Agriculture

Utilities (Western Resources)

Water Conservancy

Wild Turkey Federation

Wildlife Management Institute

#### **GEOGRAPHIC SUB - UNIT: MOUNTAIN**

#### **Mountain - Resource Area:**

The Mountain subunit of the Platte / Kansas Rivers ecosystem includes north-central Colorado and south-central Wyoming. It encompasses the headwaters of the North and South Platte Rivers. Hydrology of these rivers has been greatly altered primarily by irrigation practices and reservoir development. North Platte Reservoirs include Pathfinder, Alcova, Seminoe, Glendo, Grey Rocks and Guernsey. Elevations range from 5000 to 13,500 feet changing from a sagebrush steppe to coniferous forest. Although the mountainous areas receive significant snowfall, generally the climate is semi-arid with average rainfall between 8 - 16 inches per year. This region includes the Laramie Plains and associated Big and Little Laramie River riparian corridors.

#### **Mountain - Vision:**

Mountain ecosystems will be characterized by: 1) healthy, unfragmented sagebrush dominated communities; 2) healthy river systems that maintain indigenous species; 3) healthy Laramie Plains rivers and lakes that support amphibians such as the Wyoming toad; 4) healthy sub-alpine communities that contain a diversity of species including boreal toads; 5) wildlife habitats that maintain ecological integrity in conjunction with economic development and urbanization.

# **Mountain - Threatened and Endangered Species:**

Preble's meadow jumping mouse
Blowout penstemon
Bald eagle
Ute ladies tresses orchid
Black-footed ferret
North Park phacelia
Wyoming toad
Greenback cutthroat trout
Laramie false sagebrush
Canada lynx
Mexican spotted owl
Pawnee montane skipper

#### **Mountain - Species of Conservation Concern:**

Black-tailed prairie dog
Boreal toad
Sage grouse
White faced ibis
Burrowing owl
Water skipper butterfly
Rocky Mountain capshell snail
Wolverine

# **Mountain - Invasive Species of Concern:**

Russian olive

Knapweed(s)

Yellow toadflax

Dalmatian toadflax

Leafy spurge

Purple loosestrife

Canada thistle

Musk thistle

White top

Smooth brome grass

Cheat grass

Hounds tongue

# **Mountain - Ecological Targets / Priorities:**

Sage Communities

Platte River Systems (North and South)

Wyoming Toad/Laramie Plains Habitat

Mountain Lakes and wetland/wet meadow habitats 8,000 - 10,000 feet elevation

Front Range riparian corridor

## **Mountain - Goals and Objectives:**

- 1A. Maintain or re-establish sage communities to provide integrity for indigenous flora and fauna (species include sage grouse, sage thrasher and Brewers sparrow).
- 1B. Support the goals and objectives outlined in sage grouse management plans for Jackson, Albany and Carbon counties.
- 2. Protect, enhance, restore the North Platte River above Lake McConaughy to support indigenous flora and fauna and improve stream function.
- 3A. Support goals and objectives outlined in the Wyoming Toad Recovery Plan. Support chytrid fungus research by encouraging research on Mortenson Lake NWR by 2005.
- 3B. Maintain, protect and restore the ecological integrity of the Laramie plains to support indigenous flora and fauna.
- 4. Prevent degradation of habitat that supports indigenous flora and fauna around mountain lakes and wet meadows between 8,000 and 10,000 feet elevation.
- 5. Maintain ecological integrity of Front Range communities in conjunction with economic development and urbanization.

# **Strategies to Accomplish Goals:**

Through partnerships:

1A. Refine data on current habitat conditions and needs assessment for sage obligate species patterns.

1B.By 2005, Arapaho NWR will be a demonstration site for healthy sage community management.

2A.Establish partnerships with Platte River users to minimize threats to river corridor species

2B.Investigate water quantity and quality problems by 2004 to determine methods by which partner's may improve existing conditions.

3A.Fund a Wyoming Toad Coordinator Position as outlined in the Wyoming Toad Recovery Plan.

3B. Support chytrid fungus research by encouraging research on Mortenson Lake NWR by 2005.

3C. With partners, restore 200 acres of wetlands within the Laramie Plains by 2005

4A.Support partnerships with the U. S Forest Service and Wyoming Game and Fish Department to locate and map imperilled species habitat including boreal toads.

4B.By 2003, produce and distribute informational posters, literature and informational programs for the public that promote responsible land use.

5A.Create a Front Range Riparian Initiative that will address current threats to degraded riparian areas.

5B. By 2010, restore/protect 100 miles of riparian habitat along the Colorado Front Range

#### **Partners:**

The Nature Conservancy
Ducks Unlimited
State Natural Resource agencies
Department of Defense
Other State agencies
Natural Resource Conservation Service
US Forest Service
Soil Conservation Districts
Farm Bureau
Animal and Plant Health Inspection Service
Universities
Pheasants Forever

Cattlemen's Association
Individual landowners
Department of Transportation
Utilities
Water Conservancy
Railroad
US Department of Agriculture
State Land Boards
State and Local non-profits

# **GEOGRAPHIC SUB - UNIT: SHORT GRASS PRAIRIE**

# **Shortgrass Prairie - Resource Area:**

The Shortgrass prairie sub unit of the Platte / Kansas Rivers ecosystem includes eastern Colorado and southeastern Wyoming from the Front Range east into the Nebraska Panhandle, southwest Nebraska and approximately the western 1/3 of Kansas. Elevations range from 6000' in the west to 2000' in the east. Major riparian systems include the North and South Platte Rivers, and the headwaters of the Republican and Kansas rivers and their tributaries. Topography is generally flat to rolling plateau. Climate is semi-arid with average rainfall between 10-20 inches per year. Native vegetation is dominated by grasslands and mixed grass-shrub communities. Dominate species include buffalo grass and blue grama in the grasslands and sand sage shrub lands. Since European settlement, riparian corridors have become wooded habitats that provide immigration routes for eastern species.

#### **Short Grass Prairie - Vision**

The vision of the ecoteam for Shortgrass Prairie ecosystem is one in which: 1) native grasslands remain the predominate habitat type and conversion of grasslands to other uses is minimized; 2) habitat values of existing grasslands are restored; 3) threatened, endangered and endemic species are protected; 4) recreational opportunities are enjoyed in a manner compatible with resources protection; 5) economic development complement environmental protection; 6) decisions are based on the best available scientific data; 7) stakeholders are involved in a collaborative decision-making process; 8) actions are guided by adaptive, flexible management and monitoring; 9) partnerships are the norm; 10) a largely private owned landscape where family farms and ranches are economically viable and resource stewardship is tied to sustainable agriculture; 11) urban development and regional planning incorporate open space and biodiversity as an important part of urban infra-structure and quality of life.

#### **Short Grass Prairie - Threatened and Endangered Species:**

Eskimo curlew
Preble's meadow jumping mouse
Blowout penstemon
Bald eagle
Ute ladies tresses orchid
Colorado butterfly plant
Least tern
Piping plover
Wyoming toad
Whooping crane

**Short Grass Prairie - Species of Conservation Concern:** 

Black-tailed prairie dog Mountain plover Swift fox
Ferruginous hawk
Long-billed curlew
Upland nesting passerine birds
Native aquatic species
Yellow mud turtle

# **Short Grass Prairie - Invasive Species of Concern:**

Reed canary grass

Phragmites

Smooth brome

Cheat grass

Russian olive

Knapweed(s)

Dalmatian toadflax

Leafy spurge

Purple loosestrife

Canada thistle

Zebra mussel

Eurasian water milfoil

#### **Short Grass Prairie - Ecological Targets / Priorities:**

- 1. Black-tailed prairie dog ecosystem
- 2. Riparian corridors South Platte River
- 3. Shortgrass prairie grasslands
- 4. Sand-sage Communities
- 5. West edge of Nebraska Sandhills

# **Short Grass Prairie - Goals and Objectives:**

- 1. Protect and/or restore 100,000 acres of occupied Black-tailed prairie dog ecosystem in accordance with Multi-state and Colorado Plans within the next 5 years.
- 2. Protect and/or restore 20 miles of riparian corridor within the next 5 years along both large and small drainages.
- 3. Restore/protect/create 2500 acres of wetlands within the next five years.
- 4. Enhance/restore (i.e. weed control, livestock management) 20,000 acres in short grass prairie grasslands and sand-sage communities within the next 5 years.

# **Strategies to Accomplish Goals:**

Through partnerships:

- 1. Refine data on current habitat conditions and land ownership patterns
- 2. Refine and implement grassland and wetland restoration techniques and methods
- 3. Work on two prairie dog MOU's (Colorado and Multi-State)
- 4. Promote environmental education
- 5. Develop and implement a vaccine and delivery system to curb sylvatic plague in prairie dogs
- 6. Create voluntary landowner incentive programs to control invasive species
- 7. Land protection (fee and easements) by FWS and our Partners

#### **Partners:**

The Nature Conservancy

**Ducks Unlimited** 

State Natural Resource agencies

Department of Defense

regional and local land trusts

Other State agencies

NRCS

**US Forest Service** 

Soil Conservation Districts

Farm Bureau

Animal and Plant Health Inspection Service

Universities

Pheasants Forever

Cattlemen's Association

Individual landowners

Department of Transportation

Utilities

Water Conservancy

railroad

US Department of Agriculture

State Land Boards

State and Local non-profits

#### LITERATURE CITED:

The Nature Conservancy. 1998. Ecoregional Based Conservation in the Central Shortgrass Prairie (1-92)

Samson, F.B. and F. Knopf. 1994. Prairie Conservation in North America, Bioscience, Vol 44, No. 6 (418 - 421).

Fulfilling the Promise. 1999. US Fish and Wildlife Service, Department of the Interior publication. 92 pp.

# **APPENDIX 1**

## **Ecosystem Decision Matrix**

#### Criteria

#### 1) Threatened and endangered species. 15 Points Maximum

The intent of this criteria is to give more weight to proposals demonstrating a direct benefit to the greatest number of imperiled species, those species that are in greatest need of assistance, and proposals that move the species towards recovery.

#### Species Status

Endangered:	5 points	* # of endangered species =	
Threatened:	3 points	* # of threatened species =	
Proposed:	2 points	* # of proposed species =	
Candidate:	1 point	* # of candidate species =	

#### 2) Migratory Birds. 15 Points Maximum

Provides habitat for raptors:	3 points	
•	1	
Provides habitat for passerines:	3 points	
Provides habitat for ducks, geese, and swans:	3 points	
Provides habitat for shorebirds and other wetland obligate species: 3 points		
Provides habitat for 3 or more of the migratory bird groups above: 3 points		

#### 3) Large, Intact Landscapes. 15 Points Maximum

Large tract of land or potential acres impacted:

> 5000 acres:	5 points
1000 - 5000 acres:	3 points
<1000 acres:	1 point

Land adjoining or expanding upon areas already protection (i.e. subject to state and/or federal resource protection laws): 3 points

Disturbance/Restoration Potential:

Little to no disturbance (pristine):	4 points
Slight disturbance (easily restored):	3 points
Moderate disturbance (moderate restoration required):	2 points
Significant restoration required:	1 point
Heavily disturbed (cannot be restored):	0 points

Lands that create corridors linking priority habitats:	3 points
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## 4) Fisheries. 15 Points Maximum

High quality habitat present:	5 points
Habitat capable of being restored:	4 points
Presence of indigenous species:	3 points
Absence of non-native or invasive species:	3 points

# 5) Degree and Immediacy of Threats. 15 Points Maximum

This criteria measures the immediacy as well as the potential degree and extent of threats facing a particular resource.

Degree of Threat:

High degree of threat:	8 points
Medium degree of threat:	5 points
Low degree of threat:	2 points

#### Immediacy of Threat:

Immediate and imminent action pending:	7 points
Moderate chance of impending action:	4 points
Slight chance of impending action:	1 point

# 6) Good Opportunities. 10 Points Maximum

Ten or more partners:	Yes / No
Identified as a "Focus Area" by NGO or other agency	Yes / No
At least a 3:1 non-FWS match available	Yes / No
Watershed group in place:	Yes / No
Defined and measurable objectives:	Yes / No
Multiple native species benefits:	Yes / No

Excellent (6 of 6 criteria met):	10 points
Very Good (5 of 6):	7 points
Good (4 of 6):	5 points
Fair (3 of 6):	3 points
Poor (2 or less):	1 point

# 7) Likelihood of Achieving Objective(s) as Defined: 10 Points Maximum

Will meet or exceed objective(s):	10 points	
Will meet most objective(s):	7 points	
Will meet some objective(s):	4 points	
Does not meet objective(s):	0 points	

# 8) Cost/Benefits: 5 Points Maximum

This criteria may not apply to all opportunities (units other than area may require different multipliers).

Less than \$300 per acre:	5 points
\$300 - \$700 per acre:	3 points
Greater than \$700 per acre:	1 point

# GRAND TOTAL: 100 Points Maximum =

#### APPENDIX 2

#### ECOSYSTEM TEAM MEMBERS

Steve Anschutz Nebraska Field Supervisor US Fish and Wildlife Service 203 West Second Street Federal Building, Second Floor Grand Island, NE 68801

Phone: 308-382-6468 Ext. 12

Fax: 308-384-8835

Lee Carlson Lakewood Ecological Services US Fish and Wildlife Service 755 Parfet St., Suite 361 Lakewood, CO 80215 Phone: 303-275-2370

Fax 303-275-2371

Royce Huber Mark Lindvall Ft. Niobrara-Valentine NWR HC 14, Box 67 Valentine, NE 69201 Phone: 402-376-3789

Phone: 402-376-3789 Fax: 402-376-3217

Steve Knode Crescent Lake NWR PO Box 1346 Scottsbluff, NE 69363-1346 Phone: 308-635-7851

Phone: 308-635-7851 Fax: 308-635-7841

Mike Long Wyoming Ecological Services 4000 Morrie Ave. Cheyenne, WY 82001 Phone: 307-772-2374

Fax: 307-772-2358

Mike Blenden Alamosa-Monte Vista NWR US Fish and Wildlife Service Admin. Bldg. 9383 El Rancho Lane Alamosa, CO 81101 Phone: 719-589-4021 Ext. 103

Fax: 719-587-0595

Kenny Dinan Private Lands Coordinator Nebraska Ecological Services 203 W. 2<sup>nd</sup>. Street Grand Island, NE 68801 Phone: 308-382-6468 Fax: 308-384-8835

Dave Hilley Quivira NWR Rt. 3, Box 48A Stafford, KS 67578 Phone: 316-486-2393 Fax: 316-486-2315

Bill Gill Kansas Field Supervisor 315 Houston Street, Suite E. Manhattan, KS 66502 Phone: 785-539-3474 Ext. 14 Fax: 785-539-8567

Greg Langer Arapaho NWR Complex PO Box 457 Walden, CO 80480 Phone: 970/723-8202 Ext. 3

Fax: 970/723-8528

Gene Mack

Rainwater Basin WMD

PO Box 1686

Kearney, NE 68848

Phone: 308-236-5015 Ext. 27

Fax: 308-237-3899

Jim Minnerath Flint Hills NWR PO Box 128

Hartford, KS 66854

Phone: 316-392-5553 Ext. 104

Fax: 316-392-5554

Bruce Rosenlund K. Max Canestorp Robin Romero Colorado Fish and Wildlife Asst. Office 755 Parfet Street, Suite 496

Lakewood, CO 80215 Phone: 303-275-2392 Fax: 303-275-2395

DeeDee Roberts Saratoga NFH PO Box 665

Saratoga, WY 82331 Phone: 307-326-5662 Fax: 307-326-9869

John Seals

US Fish and Wildlife Service Leadville National Fish Hatchery 2844 Hwy. 300

Leadville, CO 80461 Phone: 719-486-0189 Fax: 719-486-3343 Erich Gilbert Kirwin NWR RR1, Box 103 Kirwin, KS 67644 Phone: 785-543-6673 Fax: 785-543-5464

Manny Medina

US Fish and Wildlife Service

PO Box 185 Derby, KS 67037

Phone: 316-788-4474 Fax: 316-788-4910

Bill Noonan

Private Lands Program
US Fish and Wildlife Service
755 Parfet St., Suite 361
Lakewood, CO 80215
Phone: 303-275-2435
Fax 303-275-2371

Dean Rundle

US Fish and Wildlife Service Rocky Mountain Arsenal NWR

Building 11

Commerce City, CO 80022

Phone: 303-289-0633 Fax: 303-289-0579

Terry Sexson

Regional Eco-system Coordinator US Fish and Wildlife Service

PO 25486, DFC

Denver, CO 80225-0486 Phone: 303-236-8155 X249

Fax: 303-236-8295

## APPENDIX 3

# **Team Members of Geographic Sub units**

# **Mixedgrass - Team Members:**

Bill Gill

Jim Minnerath

Gene Mack

Patty Worthing

Mark Lindvall

Steve Anschutz

Kenneth Dinan

Robin Romero

Royce Huber

Suzanne Fellows

Roger Gephart

# **Mountain - Team Members:**

Mike Long

Dee Dee Roberts

Greg Langer

Mike Blenden

Carol Taylor

John Seals

John Esperance

# **Shortgrass - Team Members:**

Dean Rundle

Bill Noonan

Lee Carlson

Steve Knode

Max Canestorp